

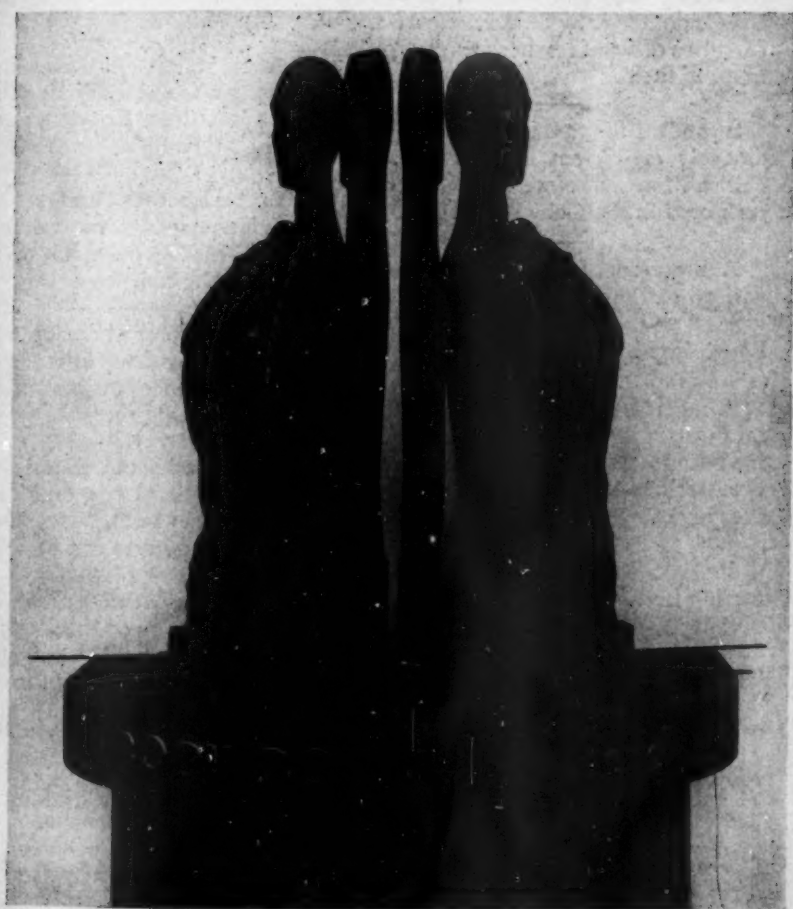
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# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



APRIL 20, 1935

Read Him Like a Book  
See Page 244

SCIENCE SERVICE PUBLICATION

## SCIENCE NEWS LETTER

VOL. XXVII

No. 732

The Weekly  Summary of

## Current Science

Published Every Saturday by

## SCIENCE SERVICE

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## DO YOU KNOW?

Chinese gardeners grew 35 varieties of chrysanthemums as early as the eleventh century.

Why there are cycles of abundance of wild game, naturalists have never fully explained.

Kansas has taken to calling its mixture of snow and dust in winter storms by a new weather word, "snust."

British botanists reported 95 species of plants blooming outdoors at Kew Gardens, near London, on Christmas day.

Cacao pods, from which cocoa is obtained, do not grow in the ordinary way from tips of branches, but from the main trunk of the tree.

Says a British commentator: there were dinosaur eggs from East Kent in the British Museum before the discovery of such eggs in the Gobi Desert.

A battalion of Scots Guards, which will go to Egypt this autumn, has been given lectures and museum tours on Egyptology by the British Museum staff.

A method of killing the worst chrysanthemum pest, the Mexican mealybug, has been found; fumigation with calcium cyanide kills the bugs without harm to the plants.

In 1881 a new fungus was found attacking leaves of oak trees in New York; nothing further has been heard of this fungus until 1935, when it is reported attacking pecan trees in Texas.

Jerusalem has been besieged 38 times in its history.

Some species of mistletoe have bright red or orange flowers and purple fruit.

Poisonous snakes are fully venomous practically from the time they leave the egg.

Merida, capital of Yucatan, was founded by the Spanish conquerors on the site of an ancient Indian city called Tihou.

Among the Mayas of ancient Yucatan, young men were permitted to drink intoxicating beverages only in religious ceremonials.

At Minturno, Italy, remains of paved streets are found, indicating that the Romans laid street pavings as early as the fifth century B.C.

In seventeenth century England a popular remedy advocated for baldness was to rub an onion on the head and stand in the sun.

The only proved carrier of the Dutch elm disease is the smaller European bark beetle, but other possible carriers, such as birds, are being studied.

Soviet workers are restoring antiquities of the medieval city of Novgorod, including famous bronze gates, church paintings and frescoes.

Home economics teachers advise against counting on the saying, "A pint's a pound the world around," because some liquids are heavier than others.

## WITH THE SCIENCES THIS WEEK

Most articles are based on communications to Science Service or papers before meetings, but where published sources are used they are referred to in the articles.

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To what size does the whale shark grow? p. 245.

PHYSIOLOGY

# "Brain Waves" Hint Epilepsy Is Neurological Thunder Storm

## "Electro-Encephalograms" Comparable to Electro-Cardiograms May Also Improve Use of Anesthetics

**B**RAIN waves" tapped electrically are providing a new clue to the mystery of epilepsy, the first fresh lead to this disease problem that scientists have had in a long time.

Drs. F. A. Gibbs, H. Davis and E. L. Garceau of Harvard Medical School reported to the American Physiological Society that an electrical hook-up to the brain producing wavy lines traced on paper gives a new clue to what goes wrong in this malady.

They find by this means that epilepsy is probably a neurological storm which results in great piling up of electrical discharges.

Epilepsy today afflicts almost as many persons in the United States as tuberculosis. It is characterized by sudden loss of consciousness and by fits.

Even between seizures, something is wrong with the activity of brain and nervous system.

The tracings of the small waves of electricity which come off from the brain are called "electroencephalograms" and are like the now familiar electrocardiograms which give physicians information about the action of the heart.

Studying these is like getting evidence of a thunderstorm simply from studying the electrical disturbances of the storm. Normally these small waves come off the brain at the rate of about ten per second. When a person is sleeping, in a faint, or loses consciousness temporarily in the strange sleep disease called narcolepsy, the brain waves are slowed down to about three to five per second and have about double the normal voltage.

In minor epilepsy, just before and during an attack, the brain waves come off about every three seconds and in a strange pattern of large round waves with a spiky wave between the round ones. In major epilepsy both fast and slow waves of much greater than normal voltage are found.

Even more important, the disturbance in brain activity as shown by these tracings of the electrical waves from the brain goes on even when the epileptic

patient is not having a fit or seizure and is in an apparently normal period.

These changes probably hold the clue to what is going on in the brain at the time of a seizure and if they can find just what the waves mean in terms of nervous activity, the Harvard scientists believe they may be able to find out what an epileptic seizure is and how it starts. If they find that in some cases it starts in a part of the brain which the surgeon can get at, there might be a chance that the part where the disorder starts could be removed. This prospect is far in the future, however, Dr. Gibbs emphasized.

At present no exact interpretations of the electroencephalograms can be made.

These patterns of brain activity may also lead to better use of anesthetics for surgical operations. Definite and char-

acteristic changes appear when different kinds and different amounts of anesthetics are used, another group of Harvard scientists, Drs. A. Forbes, A. J. Derbyshire, B. Rempel and E. Lambert, found.

The patterns are not the same when an animal is under ether, for example, as they are when he has been given avertin anesthetic.

Changes in the pattern of the brain waves also occur when the animal's sensory nerves are stimulated, and from this observation the scientists hope to find how the brain activity is linked with the world outside, for example, what happens in the brain when you feel a touch on your arm.

This investigation, with its promise of medical applications, is a continuation of research which has been carried on for the past few years by a number of scientists, notably in this country by Drs. H. H. Jasper and Leonard Carmichael of Bradley Hospital and Brown University. (See *SNL*, Jan. 19) As early as 1925, Dr. Pawlucz Neminski found these brain waves in dogs. Dr. E. D. Adrian, British Nobel laureate found such waves in the brains of rabbits. The Jasper-Carmichael research was performed on human subjects as was the Harvard research.

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**RECORDING BRAIN WAVES**

While the subject lies comfortably at rest, scientists can tap the electric waves that accompany his brain action and make a photographic record of any disturbances. This picture shows the set-up of Dr. Jasper and Dr. Carmichael for some of the pioneer research in this field.

## ANIMAL PSYCHOLOGY

# Apes Can be Philanthropists As Well As Beggars

Some Voluntarily Give Food to Others Though Strong Enough to Have It All; "Money" Given More Readily

**C**HIMPANZEE society has both its liberal givers and its chronic beggars, to judge from a study of food-sharing behavior reported by Dr. H. W. Nissen and Dr. M. P. Crawford of the Yale University Psychology Laboratories at a meeting of the New York branch of the American Psychological Association at Princeton. Some chimpanzees will never beg food of another; others will beg whether or not they have food of their own at hand. Some never respond to a plea for alms, and others, even though they are the strongest of the group, will give voluntarily.

The experiment was designed to determine if chimpanzees ever share their food under conditions of non-compulsion and when no direct or immediate gain for the animal who shares is involved. The question of altruistic behavior among higher animals is one of major interest in social science and one in which little progress has been made, due to lack of opportunity for controlled experiment. The investigators in this study found few examples in chimpanzees of what is called altruistic behavior in humans.

Eight chimpanzees ranging in age from four to nine years were observed in different combinations of two during ninety experimental periods. Two subjects were placed in the same cage or in adjoining cages separated only by iron bars. One or both were given food, or tokens which could be exchanged for food by inserting the tokens in an apparatus attached to one of the cages. One of the most striking results when the animals were in the same cage was the discovery that the most dominant individual, that is, the most aggressive and usually the larger and stronger, did not always get the major portion of food, even though he could have had all. An interesting incidental observation was the tremendous interest which certain individuals showed in the eating activities of their companions; they would forget to eat themselves while they intently watched the other, even imitating the jaw and lip movements.

Teasing behavior was common among the animals. Some enjoyed offering food through the bars to a begging companion and withdrawing it quickly just before it could be grasped. Such behavior was frequently accompanied by stomping and hooting on the part of the victimized animal and sometimes resulted in a temper tantrum. Some individuals begged food, placed it out of reach in their own cage, and immediately begged for more. Tokens were relinquished more frequently and more readily than was the kind of food which could be obtained with them. The degree of hunger apparently had little effect either on begging or on responsiveness to begging. In general, the begging behavior followed a characteristic pattern, with individual variations.

Dr. Nissen and Dr. J. H. Elder reported on a study indicating that the length of time a chimpanzee can remember into which of several boxes food has been placed depends both upon the amount of reward he has previously received and the amount which he sees placed in the box. In this study of "delayed response" the animal observes food being placed in one of two boxes. A curtain is lowered cutting off the animal's view. After an interval the curtain is raised and the chimpanzee can obtain the food if he selects the right box.

*Science News Letter, April 20, 1935*

## MEDICINE

## Pain of Inoperable Cancer Relieved by Cobra Venom

**P**ATIENTS suffering from inoperable cancer were definitely relieved of pain and felt better when treated with injections of suitable doses of cobra venom, Dr. David I. Macht of Baltimore reported to the American Physiological Society meeting.

Those patients who had been getting morphine for their pain were able, with the aid of the cobra venom, to get along with much smaller doses of morphine or to do without it altogether. This does

not, however, mean that the snake poison is a cure for cancer. It merely relieves the suffering in cancers that are too far advanced to be removed by operation.

"All the evidence in hand indicates that cobra venom relieves pain in much the same way morphine does, through its action on the cerebrum, but without exerting the narcotic effects of the latter," Dr. Macht said.

Dr. Macht's interest in the use of cobra venom as a medicine was stimulated by work being done at the Pasteur Institute, Paris, where minute doses of this snake poison, properly standardized and sterilized, have been claimed to relieve the pains caused by inoperable cancers and other malignant tumors. For the past six months Dr. Macht has been collaborating with two Baltimore surgeons in the use of cobra venom for inoperable cancers. In nearly three-fourths of the small series of cases so far studied, the results have been decidedly favorable so far as relieving pain is concerned. No curative effect, of course, is claimed.

Dr. Macht described experiments showing that the pain-relieving action of cobra venom is not due to a local anesthetic effect but to its action on the nerve centers in the brain.

*Science News Letter, April 20, 1935*

## MUSEUMS

## New Exhibits Portray Workings of Human Body

See Front Cover

**"R**EADING him like a book" becomes more than a figure of speech to the visitor in the new Cabana Hall of Man at the Buffalo Museum of Science, recently opened to the public. One of the most striking of the exhibits consists of two anatomical models split into series of thin sections which can be separated, book-fashion, permitting the student to "look at his own insides" not merely along one plane but at any place he wishes, either from right to left or from head downward.

The entire hall is devoted to the anatomist's and physiologist's task of showing how the human body works and how it may best be guarded against malfunction and disease. The central exhibit is a replica of the "Transparent Man," of Century of Progress fame. There are other exhibits showing the pumping action of the heart, the production of voice sounds, the course of blood corpuscles, etc. One of the most ingenious is an electrically driven human skeleton.

*Science News Letter, April 20, 1935*

## CHEMISTRY

# Acid Essential To Life Discovered

**Hitherto Unknown Protein Material is Number 22 In List of Known Amino Acids in Body Proteins**

THE DISCOVERY of a hitherto unknown protein material in food absolutely essential to growth and life was announced by Dr. William C. Rose of the University of Illinois to the Federation of American Societies of Experimental Biology.

It is No. 22 in the list of the known amino acids in the proteins of the body and No. 8 in the list of those that have been shown to be necessary to life. Scientifically its name is: *Alpha-amino-beta-hydroxybutyric*.

The newly found amino acid was discovered, identified and prepared synthetically by Dr. Rose and his associates, Dr. H. E. Carter, Richard H. McCoy and Miss Madelyn Womack of the physiological chemistry staff.

Proteins taken into the body in such foods as meat, milk and eggs carry the only type of nitrogen available to the use of the body. These proteins are changed, through the digestive processes, into amino acids and the nitrogen fixed in these acids is absorbed by the body.

About five years ago, in attempting to learn which were necessary to life, Dr. Rose and his associates fed animals a mixture of foods containing no protein but to which had been added all of the 21 amino acids then known. The animals receiving such a mixture declined rapidly in weight and eventually died, he explained. This was interpreted as indicating the presence in proteins of a hitherto unknown component which was essential to life. With that in mind a search began for the substance in question. The search was rewarded with the recent isolation of this new acid. When it and the 21 previously known ones are added to an otherwise normal diet, but one which lacks proteins, normal growth and weight are produced. This is the first time on record that animals have grown on mixtures of highly purified acids in place of proteins.

Dr. Rose is of the opinion that this discovery will make it possible to determine which of the 22 amino acids present

in proteins are necessary for life and which are non-essential. By the use of a diet carrying all, the amino acids may be dropped out one at a time, and the effect of each upon growth accurately determined. This work is already in progress and will require possibly another two years for completion.

After that has been done, Dr. Rose and his staff expect to determine the quantity of all the amino acids which are required for normal growth. It is probable, he thinks, that when such information has been obtained, it may prove to be of clinical value in that the essential amino acids may be administered intravenously to patients who, because of stomach ulcers or other illness, are unable to consume food in the normal fashion. Experiments along this line are now being conducted.

*Science News Letter, April 29, 1935*

## ZOOLOGY

## "Little" Shark 15 Feet Long Captured in Mexico

FIFTEEN feet of whale shark, but rated as "little" because full-grown specimens get to be three times that big, is

the recent capture of Francisco Moreno, fishing captain of the port of Acapulco, Mexico, better known as "Pancho." The skin of the big fish has been acquired by the American Museum of Natural History, and will be mounted.

### Half-Hour Struggle

Dr. E. W. Gudger of the Museum, who describes the specimen (*Bulletin of the New York Zoological Society*, March-April) tells of battle which is reminiscent of the struggle with a basking shark, another monster, depicted in the now famous Irish film, "Man of Aran." Pancho saw the big shark swimming in the harbor, a few hundred yards off shore, in about thirty feet of water. He launched a harpoon into it, secured by a seven-eighths inch rope. The shark ran out about 200 feet of line, and put up a struggle lasting half an hour. Then a second harpoon was thrown, and another endurance contest ensued.

Finally the whale shark was exhausted, a line was made fast around its tail, and it was hauled ashore.

### Has Captured Six

This is the sixth whale shark Pancho has captured in Acapulco harbor. The others, taken in 1932 and 1933, were of about the same size as the new specimen, except that one was about 19 feet long.

The whale shark is a true shark, and not related to the whales at all. It is so named simply because of its great size and wide mouth. In spite of its formidable appearance it is quite harmless. It feeds only on relatively small fish, jellyfish, swimming crabs, etc., and its gullet is hardly larger than a man's wrist.

*Science News Letter, April 20, 1935*



15-FOOT BABY WHALE SHARK

## PHOTOGRAPHY

# Home Color Movies May be Made Without Camera Filters

## "Quintuplet" Film Coated With Five Layers of Emulsion and Gelatine Is Simple to Use

**A** NEW simple "quintuplet" system of color movies for 16 mm. amateur cameras was announced by the Eastman Kodak Company as the invention of two musicians.

The new color film, known as Kodachrome, consists of five layers of emulsion and gelatine. Nicknamed the "quintuplet" film, it takes color motion pictures without the necessity of any special three colored filters on the camera and in the projector. The new film is expected to replace present Kodacolor film now widely used.

At a private advance showing a Science Service representative saw color movies taken with the simplicity of ordinary black and white pictures. Quickly the film was developed and processed in special machines. When screened, delicate pastel shades stood out clearly and the depth of focus was much greater than was formerly possible.

Dr. C. E. Kenneth Mees, Eastman research director, explained that the new color film is the result of an invention some years ago by two musicians, Leopold Mannes and Leo Godowsky, Jr., who studied photography as a hobby. Since 1931 the musicians have been on the Eastman research laboratories staff at Rochester, N. Y., working, with the help of the entire staff, to perfect their work.

The film is coated five times. The resulting quintuplet "sandwich" of gelatine and light-sensitive emulsions separates the light rays entering the camera into the three primary colors, red, green and blue-violet, because of the presence of three layers which absorb these colors only. Under the three layers is the transparent supporting base on the back of which is the customary layer, known as antihalation backing, which prevents any back scattering of light that might overexpose the film.

Taking pictures in color with the new film is simple. As ordinary black and white movies, the light intensity must be judged to determine what aperture or light gathering power of the camera must

be used. The only rule when taking the new color movies is to double the amount of light that would be used for black and white movies.

Because special filters are not needed, the new film is comparatively "fast." Cameras with low-cost lens, such as f4.5, can be used.

Processing the film, said Dr. Mees, is a complicated technique which produces good results only when performed under standardized conditions in the factory. Each of the three layers in the film must be developed and then dyed to the complementary color before projection. Thus the red-sensitive layer is dyed to a blue-green color, the green-sensitive layer to the reddish magenta shade and the blue-sensitive layer to a yellow image.

"Previously, color in photography has involved sacrifices," Dr. Mees said. "More light was needed for taking the pictures, it was difficult to get sufficient depth of focus, some definition was lost, and it was only possible to project pictures on a small screen because of the loss of light on projection."

"When you see the Kodachrome film on the screen you will realize how wonderfully colored the world is. An artist, of course, knows this, but most of us are not artists and we don't realize the subtle colors that occur in everyday scenes—

flowers and foliage, and summer landscapes, where bright colors strike the eye. But the new Kodachrome process has been brought to perfection during the winter, and it has taught us to look for the purple-brown of the winter woodland, and the blue of the ice and the shadows in the snow, so that I realized as everyone will soon realize, that it is only in color that we can make any adequate representation of the world about us."

Price of the new Kodachrome film, it is announced, will be the same as the Kodacolor film now used.

*Science News Letter, April 29, 1933*

## PHYSIOLOGY

### Vitamin A Researches Split \$5000 Prize

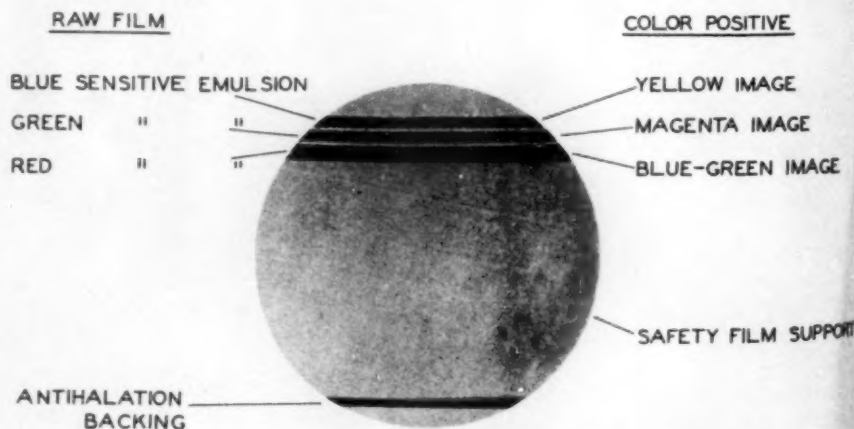
**I**N RECOGNITION of their researches on vitamin A, a \$5000 award offered by Mead Johnson and Co., will be divided between Dr. Karl Mason of Vanderbilt University and Dr. S. B. Wolbach of Harvard Medical School.

Dr. Mason's researches demonstrated specific differences in the way lack of vitamin A and lack of vitamin E affect the tissues of certain reproductive organs. It was already known that lack or deficiency of either vitamin may cause sterility.

Dr. Wobach has done basic work on changes in the body resulting from deficiency in vitamin A. He has also shown that tissues which become diseased through vitamin A deficiency grow normal again when vitamin A is added to the diet. The award to Dr. Wobach also recognized his work showing that vitamin A is essential for the normal development of teeth.

Another award of \$15,000 was postponed for two years.

Science News Letter, April 20, 1938



**"QUINTUPLET" FILM FOR HOME COLOR MOVIES**

# NEW BOOKS ON SCIENCE

Science News Letter presents a comprehensive list of scientific books published or to be published between January 1 and June 30, 1935. All information is believed to be correct but is not guaranteed. Prices are listed where known. Prices marked \* are tentative. This list is recommended as a handy reference in the purchasing of books on science.

Science News Letter will secure for its subscribers any book or magazine in print which was published in the United States. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be remitted) and we will pay postage in the U. S. Address Book Dept., Science News Letter, 2101 Constitution Ave., Washington, D. C.

The book list this time contains over 600 titles, about 70 per cent. more than last fall, representing the increased interest in science publication.

## Anthropology, Archaeology

- ABORIGINAL POPULATION OF NORTHWESTERN MEXICO—Carl Sauer—*U. of Calif.*, 35c.
- THE ALASKA NATIVES: A Survey of Their Sociological and Educational Status—H. D. Anderson and W. C. Eells—*Stanford*, \$5.
- THE ANTHROPOLOGIST AND THE ADMINISTRATOR—G. G. Brown and A. M. Bruce Hutt—*Oxford*.
- ANTIQUITIES OF THE NEW ENGLAND INDIANS, with notes on the Ancient Cultures of the Adjacent Territory—C. C. Willoughby—*Peabody Museum*, \$4.50.
- ARCHAEOLOGICAL RESEARCHES AT TEOTIHUACAN, MEXICO—S. Linné—*Oxford*, \$10.\*
- THE BARAMA RIVER CARIBS OF BRITISH GUIANA—J. P. Gillin—*Peabody Museum*, \$3.50.
- THE CHINOOK; A History and Dictionary—E. H. Thomas—*Metropolitan*, \$2.
- THE COMING OF MAN—G. G. MacCurdy—*University Society*, paper 65c, cloth \$1.
- CONQUEST OF THE MAYA—J. L. Mitchell—*Dutton*, \$3.75.
- CREATION AND EVOLUTION IN PRIMITIVE COSMOLOGIES—Sir James George Frazer—*Macmillan*, \$3.
- EINFUEHRUNG IN DIE PHILOSOPHISCHE ANTHROPOLOGIE—P. Landsberg—*Westermann*, \$3.52.
- THE EMPIRE OF THE SNAKES—F. G. Carnochan and Hans C. Adamson—*Stokes*, \$2.50.
- ESKIMO YEAR—G. M. Sutton—*Macmillan*, \$3.
- EXCAVATIONS AT TEPE GAWRA—E. A. Speiser—*Amer. Philosophical Society*, \$6.
- AN EXPERIMENT IN APPLIED ANTHROPOLOGY—G. G. Brown and A. M. Bruce Hutt—*Oxford*, \$2.50.
- THE GEOGRAPHIC PATTERN OF MANKIND—J. E. Pomfret—*Appleton*, \$4.
- HANDBOOK OF PALESTINE AND TRANSJORDAN (rev.)—Harry Luke and Edward Keith-Roach—*Macmillan*, \$5.75.
- HEREDITY AND THE ASCENT OF MAN—C. C. Hurst—*Cambridge*.
- HOPÍ JOURNAL—Elsie Clews Parsons—*Columbia*.
- AN INTRODUCTION TO THE ANTHROPOLOGY OF THE NEAR EAST IN ANCIENT AND RECENT TIMES—C. U. Ariens Kappers and Leland W. Parr—*Van Riemsdyck*, \$9.00.
- THE MAGDALENIAN SKELETON FROM CAPBLANC IN THE FIELD MUSEUM OF NATURAL HISTORY—Gerhardt von Bonin—*U. of Illinois*, \$1.50.\*
- MANUS RELIGION—R. F. Fortune—*Amer. Philosophical Society*, \$4.

- MATERIAL REMAINS OF THE MEGIDDO CULT—H. G. May and R. M. Engberg—*U. of Chicago*, \$6.
- OLD TESTAMENT IN THE LIGHT OF ANTHROPOLOGY—E. O. James—*Macmillan*, \$1.75.
- PREHISTORIC SURVEY OF EGYPT AND WESTERN ASIA, III. Paleolithic man and the Nile Valley in Nubia and Upper Egypt—K. S. Sanford and W. J. Arkell—*U. of Chicago*, \$7.
- PRIMITIVES AND THE SUPERNATURAL—Lucien Levy-Bruhl—*Dutton*.
- PROGRESS OF ARCHAEOLOGY—Stanley Casson—*Whittlesey*, \$2.
- RACE AND CULTURE CONTACTS—E. B. Reuter, ed.—*McGraw-Hill*, \$3.
- RACE RELATIONS—Weatherford and Johnson—*Heath*, \$3.20.
- THE RACES OF MAN—R. B. Bean—*University Society*, paper 65c, cloth \$1.
- RESEARCHES IN ANATOLIA, VI: Inscriptions from Alishar and Vicinity—I. J. Gelb—*U. of Chicago*, \$6.
- SENNACHERIB'S AQUEDUCT AT JERWAN—Thorkild Jacobsen and Seton Lloyd—*U. of Chicago*, \$5.
- THE STONE AGE RACES OF KENYA—L. S. B. Leakey and others—*Oxford*, \$12.75.
- THE STORY OF CIVILIZATION, Our Oriental Heritage—Will Durant—*Simon & Schuster*, \$5.\*
- SUMATRA: ITS HISTORY AND PEOPLE—Edwin M. Loeb—THE ARCHAEOLOGY AND ART OF SUMATRA—Robert Heine-Geldern—*Van Riemsdyck*, \$6. in one volume.
- THE TARAHUMARA, An Indian Tribe of North Mexico—W. C. Bennett and R. M. Zingg—*U. of Chicago*, \$4.
- TOMB DEVELOPMENT—G. A. Reisner—*Oxford*.
- VOICES FROM THE SILENT CENTURIES—Harry Rimmer—*Eerdmans*, \$1.
- VORZEITLICHE LEBENSSPUREN—O. Abel—*Westermann*, \$8.90.
- WHEN HISTORY BEGAN—Mary G. Kelty—*Ginn*, 76c.

## Astronomy

- ASTRONOMICAL GEOGRAPHY SERIES: Blank Celestial Globe with graduated support—*Geographical Press*, \$1.
- ASTRONOMICAL GEOGRAPHY SERIES: Blank Sky Map with sheets locating stars, sun, moon and planets, 15c; Planet Plotting Chart, 15c; Sun Altitude Indicator, 25c; Equation of Time (paper slide rule), 10c. Set 50c.—*Geographical Press*.

- BINARY STARS—R. G. Aitken—*McGraw-Hill*.
- A DESCRIPTIVE STUDY OF THE SPECTRA OF THE A-TYPE STARS—W. W. Morgan—*U. of Chicago*, \$1.50.
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*Science News Letter, April 20, 1935*

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*Science News Letter, April 20, 1935*

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*Science News Letter, April 20, 1935*

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*Science News Letter, April 20, 1935*

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## Archaeology

**SUMATRA, ITS HISTORY AND PEOPLE**—Edwin M. Loeb; **THE ARCHAEOLOGY AND ART OF SUMATRA**—Robert Heine-Geldern—Van Riemsdyck' Bookservice, 350 p., \$6.00. Explaining the reason for this book, Dr. Loeb points out that the only previous work in English on Sumatran culture is that by Marsden, published in 1783; and the technique of observing a people has advanced notably since. The ethnology of Sumatra, as discussed by Dr. Loeb, is interesting as well as scientifically important. A single chapter suffices to tell what has been learned about the archaeology, but hope is expressed for further field work on this island which must have been a stopping-off place for primitive man moving from Asia to Australia and the South Seas.

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#### PHILOSOPHY

### Life as Struggle

• "Life thus appears as a constant  
struggle against what is not life but only  
physical chaos.

"It is, however, only in this struggle  
that life can manifest itself as life. Life  
becomes meaningless if we regard it as  
other than a struggle against uncoordi-  
nated chaos; and the more clearly we  
realize how our universe appears apart  
from life, the more clearly does life ap-  
pear to us. To take an instance, the  
more clearly we realize what is implied  
in the physically interpreted processes of  
diffusion, filtration, osmosis, and chemi-  
cal affinity, the more clear does the coordi-  
nation which is present in living meta-  
bolic activity become. Or, to take an-  
other instance, the more clearly we realize  
the physical interpretation of light, the  
more clearly can we appreciate the ex-  
istence of physiological-coordination in  
our experience of brightness and colour."

—J. S. Haldane in *THE PHILOSOPHY OF  
A BIOLOGIST* (Oxford).

*Science News Letter*, April 20, 1935

#### GENERAL SCIENCE

### A Living Creature

• "I do not regard the phenomenon  
of life (in so far as it can be separated  
from the phenomenon of consciousness)  
as necessarily outside the scope of phy-  
sics and chemistry. Arguments that be-  
cause a living creature is an organism it  
ipso facto possesses something which  
can never be understood in terms of phy-  
sical science do not impress me. I think  
it is insufficiently recognised that modern  
theoretical physics is very much con-  
cerned with the study of organisation;  
and from organisation to organism does  
not seem an impossible stride. But equally  
it would be foolish to deny the magni-  
tude of the gulf between our understand-  
ing of the most complex form of inor-  
ganic matter and the simplest form of  
life."—Sir Arthur Eddington in *NEW  
PATHWAYS IN SCIENCE* (Macmillan).

*Science News Letter*, April 20, 1935

#### GENETICS

### Genetics and Civilization

• "At the present time two events  
are occurring side by side which are of  
vital significance to the future welfare of  
the human family. The desirable, nor-  
mal, and gifted population is restricting  
the size of its families to the extent  
where they are hardly replacing them-  
selves. In fact, many competent observ-  
ers have pointed out that this branch of

## THE AUD

civilized society is actually decreasing in-  
stead of increasing in numbers. At the  
same time there is a rapid increase in  
numbers among those individuals who  
are abnormal or subnormal in many of  
the attributes which make for the best in-  
terests of humanity. As a general rule,  
persons belonging to these last-named  
groups, take their social and family re-  
sponsibilities rather lightly, placing no  
limitations on the size of their families,  
with the result that the number of chil-  
dren in each class is rather large. Com-  
petent observers have pointed out that  
this undesirable class, as a whole, is in-  
creasing so rapidly that it is outnumber-  
ing and overshadowing the desirable  
group in our population. Needless to  
state, civilization is face to face with a  
serious problem and unless something is  
done to check and change the situation  
there is danger that our best stocks will  
be swallowed up by those with mediocre  
and deficient traits."—Nathan Fasten in  
*PRINCIPLES OF GENETICS AND EUGEN-  
ICS* (Ginn and Company).

*Science News Letter*, April 20, 1935

#### ESTHETICS

### What Is Ugly?

• "There is no formal or objective  
standard by which we may measure ugliness.  
Every conceivable phase of it could  
at least theoretically be envisaged in  
terms of beauty. The hunchback is often  
relatively as well formed as the athlete,  
everything about him has become har-  
monized with his curvature. Mr. Punch  
is as well formed as the Apollo Belve-  
dere, I think, better formed, for his  
forms have more character. In esthetics  
the ugly may be regarded broadly as the  
extremely unusual and the ill understood,  
hence intolerable. When it is under-  
stood, its unusualness and ugliness will  
generally pass. Here philology comes to  
our aid. The Latin novus meant not  
merely new, but also unlikely and re-  
pellant. Whatever finds in us no pattern  
for its apprehension disquiets and per-  
plexes us and is with difficulty brought  
into our organized (including esthetic)  
experience."—Frank Jewett Mather, Jr.  
in *CONCERNING BEAUTY* (Princeton  
University Press).

*Science News Letter*, April 20, 1935

# DRS SAY:

## BIOLOGY

## Give and Take

● "Living always means give and take, thrust and parry, action and reaction, between the living creature and its surroundings. At one time the living creature acts on its surroundings, moving them, changing them, even devouring them. The earthworm eats the soil, the whale displaces the water, the flying bird presses the air downwards and backwards, and even the passive plant changes the chemical composition of the atmosphere. But we must frankly confess that we are not able to give a definition of that kind of activity which we call living. All that we can do is to make clear what characteristics distinguish living creatures from not-living things, such as stones or stars."—J. Arthur Thomson in *BIOLOGY FOR EVERYMAN* (Dutton).

*Science News Letter, April 20, 1935*

## EMBRYOLOGY

## Anatomie of the Egge

● "Harvey was the first to note that the white of the hen's egg is heterogeneous, in the sense that part of it is much more liquid than the rest, and that the more viscous part seems to be contained in an exceedingly fine membrane, so that if it is sliced across with a knife, its contents will flow out. He also set right the errors of Fabricius, Parisanus and others, by showing that the chalazae were neither the seed of the cock nor the material out of which the embryo was formed, and, most important of all, by demonstrating that the cicatricula was the point of origin of the embryo. He denied, as against popular belief, that the hen contributed anything to the developing egg but heat. For certain it is that the chicken is constituted by an internal principle in the egge, and that there is no accession to a complete and perfect egge by the Hennes incubation, but bare cherishing and protection; no more than the Hen contributeth to the chickens which are now hatched, which is only a friendly heat, and care, by which she defendeth them from the cold, and forreign injuries and helpeth them to their meat' "—Joseph Needham in *A HISTORY OF EMBRYOLOGY* (Cambridge University Press).

*Science News Letter, April 20, 1935*

## ARCHAEOLOGY

## Lack of Ambition

● "No people can be judged as to their capacities from a mere chance stage of culture. To do this would lay one open to the historical blunder of Tacitus, when he qualified the Germans as being unfit for mental or physical work (*laboris atque operum non eadem patientia*). Yet when people like the Vedda of Ceylon, who for centuries have been exposed to a rich Buddhistic civilization, respond by taking to the jungles, it would seem certain that they lack some of the ambition displayed by the Caucasian and the Mongoloid. The same charge may be laid to the door of the Kubu and allied people of Sumatra. It is only within recent years, and at the insistence of the Dutch, that these races are being assimilated."—Robert Heine-Geldern in *SUMATRA*, By Edwin M. Loeb and Robert Heine-Geldern (*Van Riemsdyck' Book-service*).

*Science News Letter, April 20, 1935*

## BIOLOGY

## Animal Predators

● "According to a resident of Telegraph Creek near the Stikine River, Canada, no coyotes were known in that section prior to 1899. About that time, however, they came in, apparently following the old goldrush trail, probably attracted by the hundreds of dead horses along it. The invasion of Alaska seems destined to continue until coyotes have extended their range over practically all of the territory."—G. F. Gause in *THE STRUGGLE FOR EXISTENCE* (Williams & Wilkins).

*Science News Letter, April 20, 1935*

## PSYCHOLOGY

## Sinister

● "The history of man reveals no special traits, either pleasant or unpleasant, associated with sinistrals, save perhaps their definitely increased power of ambidexterity. Yet, for reasons probably related to the solar myths and other religious beginnings as previously described, left-handedness has had sinister connotations during all ages and among many types of people, varying from primitive Kafirs to so-called highly civilized Aryans. Possibly it is another instance of the majority disdaining the minority who question their rights to dominance or superiority."—Ira S. Wile, in *HANDEDNESS: RIGHT AND LEFT*—(Lotbrop, Lee and Shepard Co.).

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## The Authors Say:

PSYCHOLOGY

### Befitting Chimpanzees

● "Human use of both rewards and punishments remains in many respects at an irrational, instinctive level. Men usually do nothing until they are annoyed and then use retaliatory measures against the annoyer. The better way is to work scientifically to improve our state, no matter how good it is, to prevent troubles from occurring at all, and to do both by rewarding behavior that is rational, scientific, inventive, decent, healthy, and law-abiding. When rewards are given, our distribution of them too often befits chimpanzees in a state of nature rather than intelligent men in the civilization of 1930. People reward with pity and money a beggar with a running sore, but not an overworked mother. They reward with approval physical prowess and gorgeous display, but not their real benefactors. They reward with power, popularity rather than ability."—Edward L. Thorndike in *THE PSYCHOLOGY OF WANTS, INTERESTS AND ATTITUDES* (D. Appleton-Century Co.)

Science News Letter, April 20, 1935

SOCIOLOGY

### Human Nature

● "It was once 'human nature' to steal cattle, pretty girls, and other desirable objects from the next village. This has been stopped by gradually extending the areas within which such enterprises are forbidden. Now only large nations go on raiding expeditions. Once it was considered 'natural' for men to own other men body and soul. The Roman Empire was built on this practice and fell because of it. Now slavery has been recognized as dangerous to owners as well as to slaves. We don't allow human nature to express itself in this way.

"So I think we can look forward to certain desirable human changes in the future. It is certainly 'natural' for rich men to damage the interests of all their fellows by monopolizing a raw material

WATCH AND CLOCK MAKERS' GUIDE AND DICTIONARY (6th ed.)—Britten—Spur, London, \$5.\*

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or a service, but we can learn how to curb them as we curbed the muscular champions of prehistoric times. It is 'natural' that those persons who find themselves in pleasant circumstances should attempt to hinder advances which threaten their position, thereby causing 'technological unemployment,' depressions, etc. We will learn to deal with them somehow. Nationalism, too, is a part of 'human nature.' But in the past Brittany, Scotland, Naples, and Quebec were full of nationalistic ardor. They have all learned to cooperate with their immediate neighbors despite racial and linguistic differences. There is no real reason why this process should not be extended to cover the whole world."—Jonathan Norton Leonard in *TOOLS OF TOMORROW* (The Viking Press).

Science News Letter, April 20, 1935

HISTORY OF GARDENING

### Physician's Duties

● "The Egyptian doctor was expected not only to cure his clients but to prevent snakes from entering their houses and to drive all vermin away. His reputation was one of the things which most impressed Herodotus when he visited Egypt in about 450 B. C. He compared it with the comparative lack of physicians in Babylonia. 'Every disease,' he said, 'has his physician, whereof it cometh that every corner of Egypt is full of them, many for the teeth, not a few for the stomach and inwards.'" —Edith Grey Wheelwright in *THE PHYSICK GARDEN* (Houghton Mifflin).

Science News Letter, April 20, 1935

## ● RADIO

Tuesday, April 30, 4:30 p. m.

PLANNING FOR WATER RESOURCES DEVELOPMENT, by Prof. Thorndike Saville, Professor of Hydraulic and Sanitary Engineering, New York University.

In the Science Service series of radio addresses given by eminent scientists over the Columbia Broadcasting System.

BOTANY-PHILOSOPHY

## NATURE RAMBLINGS

by Frank Thone



### "This Sycamore Tree"

ISN'T IT odd, how the classic tree-name "sycamore" has been bandied about!

Our parable appropriately starts with a pair of philosophical limericks from England. They are comments on the basic doctrine of one school of philosophy, which claims that the world and all things in it exist only as perceptions and ideas in the mind of the observer, that seemingly large and substantial objects are there only because you think they are. The problem is proposed thus:

An Oxford young man remarked: "God Must surely consider it odd

That this sycamore tree  
Simply ceases to be  
When there's no one about in the Quad."

To which another wit offered a reconciling solution, holding the solid universe together by postulating an omnipresent Observer. The answer is set in letter form:

Dear Sir: Your bewilderment's odd:  
I am always about in the Quad,

So this sycamore tree  
Will continue to be,  
Since observed by  
Yours faithfully,  
God.

But if three diverse young men in the Quad should stop to take a good look at this sycamore tree, two of them at least might not see a sycamore there at all. They would see a tree, and they would all see the same tree, but if they were respectively Briton, American and Levantine they might find themselves presently involved in a debate "loud and long," like the Wise Men of Hindustan, as to just what they were looking at.

The Briton (our original Oxford student, let us say) would contend that it really was a sycamore. And he would be right—in Oxford, England. But put our trio on a trans-Atlantic plane and set them down in Oxford, Ohio, and the English sycamore tree "simply ceases to be" a sycamore, and becomes a sycamore maple.

If the American student should then point out what he considered to be really a sycamore, he would be pounced on at once by both the Briton and the Levantine, who would tell him it was unmistakably a plane-tree. And the American would have to admit that the tree had another name, even in the United States: buttonwood.

Then if the three were to be whisked to the holy hills of Palestine, the Oriental young man might point out still a third sycamore, only to be told by his companions that it was really a kind of fig-tree. They might further point out that this peculiar, inedible-fruited fig bears a Greek-Latin name that means "fig-mulberry"—*Ficus Sycomorus*.

Whereupon they might all seat themselves in its shade upon the ground and ask each other, mournfully, "Just what is

a sycamore, anyway?" To which the philosophical Oxonian, all his first bewilderment returning, might well respond, "God knows!"

*Science News Letter, April 20, 1935*

#### MEDICINE

### Rickets Cured With Caviar in Russia

CAVIAR may be a delicacy to most people but to children of Soviet Russia it may become a tasty substitute for cod liver oil because, like the fish oil, it is rich in anti-rickets vitamin D.

A daily dose of two teaspoons of caviar was prescribed for one month to a group of 20 babies suffering from rickets. Seventeen of the babies were completely cured by this epicurean treatment, Prof. M. Lepsky reports.

Caviar from sturgeon and carplike fish was used in this experiment. The caviar of various fishes differs but slightly in composition, however, so it is possible that other kinds of caviar may prove equally effective as a cod liver oil substitute.

*Science News Letter, April 20, 1935*

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